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CONTENTS

PIB (1st to 15th MARCH 2021)

S. No.	Area		Topics	Page No.
1.	GS 3	SCIENCE & TECHNOLOGY	Exercise 'DUSTLIK'	01
2.			INS Karanj	01
3.		ECONOMY	Census 2021	02
4.	GS 2	INTERNATIONAL RELATIONS	Quad Leaders' Virtual Summit	03
5.	GS 3	SCIENCE & TECHNOLOGY	Deep Ocean Mission	03
6.	GS 2	INTERNATIONAL RELATIONS	Maitri Setu	04
7.	GS 3	SCIENCE & TECHNOLOGY	EX Desert FLAG VI	04
8.			Global Bio-India 2021	05
9.		ECONOMY	Red Rice	06
10.			QS World University Rankings	06
11.		SCIENCE & TECHNOLOGY	Solid Fuel Ducted Ramjet (SFDR) technology	07
12.			Amazonia-1 Satellite	08
13.			National Science Day	08
14.		ENVIRONMENT	Maritime India Summit 2021	09



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1 Exercise 'DUSTLIK'

Indo-Uzbekistan Field Training Exercise 'DUSTLIK' commences in Ranikhet (Uttarakhand)

About Exercise

- It is named after Dustlik, a town in the Jizzakh region of Uzbekistan.
- Aim of the Exercise is Counter Insurgency (CI) and Counter Terrorism (CT) operations in mountainous, rural and urban scenarios under the United Nations (UN) mandate.
- First Edition Took place in Tashkent, Uzbekistan in November 2019.

Significance

- The joint army exercise between India and Uzbekistan will provide a push to the ever-growing military and diplomatic ties between the two countries. It will also reflect the strong resolve of the two nations to counter-terrorism.
- Uzbekistan is important to India for security and connectivity to the Central Asian region.
- It is also one alternative India has with respect to Afghanistan.
- Security concerns stemming from the conflict in Afghanistan is one of the major challenges for India's involvement in Central Asia.

Other similar military exercises

Name of Exercise	Country
Garuda Shakti	Indonesia
Ekuverin	Maldives
Hand-in-Hand	China
Bold Kurukshetra	Singapore
Mitra Shakti	Sri Lanka
Nomadic Elephant	Mongolia
Shakti	France
Surya Kiran	Nepal
Yudh Abhyas	USA

2 INS Karanj

INS Karanj - third Kalvari class Submarine commissioned at Naval Dockyard, Mumbai.

What are Scorpene class submarines?

- The Scorpene class submarines are one of the most advanced conventional submarines in the world.
- They were designed by French naval shipbuilding firm DCNS in partnership with Spanish shipbuilding firm.

- It can launch crippling attacks on surface and underwater enemy targets.
- They have the ability to remain submerged for 21 days.
- It has a diving depth of more than 350m.

Other Scorpene-class submarines

- The first submarine of the class, INS Kalvari, was commissioned in 2017.
- The second was INS Khanderi.
- The fourth submarine is Vela.
- Fifth is Vagir.
- The sixth is in an advanced stage of outfitting.

Various classes of Submarines in India

- ▶ **Chakra Class:** Under a 10-year lease from Russia since 2012
- ▶ **Arihant Class:** Nuclear-powered ballistic missile submarines
- ▶ **Shishumar Class:** Diesel-electric attack submarines Indian variant of the Type 209 submarines developed by the German Navy
- ▶ **Kalvari Class:** Diesel-electric attack submarines designed by French company DCNS
- ▶ **Sindhughosh Class:** Kilo-class diesel-electric submarines built with the help of Russia

3

Census 2021

The Government decided to conduct Census 2021 under the Census Act, 1948.

- The 2021 Census of India, also the 16th Indian Census, will be taken in 2021.
- The Census 2021 will be conducted in 18 languages out of the 22 scheduled languages (under 8th schedule) and English, while Census 2011 was in 16 of the 22 scheduled languages declared at that time.
- The 15th Indian Census taken in 2011, attempted to estimate the population based on Socio-Economic and Caste Status for the first time since 1931.
- For the 16th Indian census, the government is instead considering enumeration based on a list of OBCs notified by each state.
- The 2011 caste data, collected as part of the Socio Economic Caste Census (SECC), is yet to be released by the Centre.

Census (Facts for Prelims)

- ▶ The census provides information on size, distribution and socio-economic, demographic and other characteristics of the country's population.
- ▶ 'Rig-Veda' reveals that some kind of population count was maintained during 800-600 BC in India.
- ▶ Arthashastra by 'Kautilya' written in the 3rd Century BC prescribed the collection of population statistics as a measure of state policy for taxation.
- ▶ However, the first synchronous census in India was held in 1881. Since then, censuses have been undertaken uninterruptedly once every ten years.
- ▶ India's last census was carried out in 2011 when the country's population stood at 121 crore. The Indian Census is one of the largest administrative exercises undertaken in the world.

4 Quad Leaders' Virtual Summit

Prime Minister addressed the first summit of the leaders' of the QUAD (Quadrilateral Framework).

- The meeting was hosted by the USA on a virtual platform.
- Earlier in February 2021, QUAD ministerial meeting discussed issues across Indo-Pacific and the military takeover in Myanmar.
- QUAD is a grouping of India, USA, Australia and Japan which aims to safeguard the interests of democratic nations in the Indo-Pacific region and address global challenges.

Major Key outcomes

- They agreed to ensure "equitable" access to vaccines to counter the pandemic.
- The Line of Actual Control (LAC) was discussed by the QUAD leaders as one of several examples of Chinese aggression.
- QUAD is united by its democratic values and will remain an important pillar of stability in the Indo-Pacific region.
- QUAD is not a military alliance or North Atlantic Treaty Organization (NATO) equivalent; it is an opportunity to cooperate on economics, technology, climate and security.

QUAD

- It is a four-nation alliance of India, Australia, USA and Japan which was established in 2007.
- It is often dubbed as an "Asian" or "mini" NATO
- In 2020, all four QUAD Countries - Japan, India, Australia and the USA took part in the Malabar exercise.

Significance

- "America is back" in terms of global leadership, reaffirming regional alliances, and taking on the growing challenge from China.
- Due to maritime tensions with China, trade, and telecommunication issues, Australia and Japan are keen on taking the Quad partnership to deeper levels of cooperation.
- For India, the new terms of the Quad will mean more strategic support after a tense year at the LAC with China.

5 Deep Ocean Mission

Ministry Of Earth Sciences Plans Rs 8000 Crore 'Deep Ocean Mission' To Boost India's Sea Exploration Capabilities.

What is Deep Ocean Mission?

- The Deep Ocean Mission is proposed as multi-ministerial multi-disciplinary programme with emphasis on development of deep sea technology, exploration of deep sea mineral resources and biodiversity, acquisition of a research vessel for exploration, deep sea observations, and capacity building.

- Ministry of Earth Sciences is the nodal agency for implementing the programme.
- The major objectives proposed under Deep Ocean Mission are as follows:
 - Development of technologies for deep sea mining, underwater vehicles and underwater robotics;
 - Development of ocean climate change advisory services;
 - Technological innovations for exploration and conservation of deep-sea biodiversity;
 - Deep ocean survey and exploration;
 - Proof of concept studies on energy and freshwater from the ocean; and
 - Establishing advanced marine station for ocean biology.

Mining polymetallic nodules (PMN)

- One of the main aims of the mission is to explore and extract polymetallic nodules (PMN).
- These are small potato-like rounded accretions composed of minerals such as manganese, nickel, cobalt, copper and iron hydroxide.
- They lie scattered on the Indian Ocean floor at depths of about 6,000 m and the size can vary from a few millimetres to centimetres.

6 Maitri Setu

PM inaugurates 'Maitri Setu' between India and Bangladesh.

- The bridge 'Maitri Setu' has been built over the Feni River which flows between Indian boundary in Tripura State and Bangladesh.
- He also inaugurated and laid the foundation stone of multiple infrastructure projects in Tripura.
- The name 'Maitri Setu' symbolises growing bilateral relations and friendly ties between India and Bangladesh.
- The 1.9 Km long bridge joins Sabroom in India with Ramgarh in Bangladesh.
- The construction was taken up by the National Highways and Infrastructure Development Corporation Ltd.

Feni River

- Feni is a river in south-eastern Bangladesh and Tripura.
- It is a trans-boundary river with an ongoing dispute about water rights.
- It originates in the South Tripura district and flows through Sabroom town and then enters Bangladesh.
- The question of sharing the waters of the river between India and Pakistan was first discussed in 1958.

7 EX Desert FLAG VI

IAF Participated in EX Desert FLAG VI.

About the Exercise

- Ex Desert Flag is an annual multi-national large force employment warfare exercise hosted by the United Arab Emirates Air Force.

- The Indian Air Force is participating for the first time in Exercise Desert Flag-VI along with air forces of United Arab Emirates, United States of America, France, Saudi Arabia, South Korea and Bahrain.
- It aims to provide operational exposure to the participating forces while training them to undertake simulated air combat operations in a controlled environment.
- With the UAE, India has In-UAE BILAT (naval exercise) as well as Desert Eagle-II (air force exercise).

Other Multinational Exercises

- Pitch Black: Biennial, multilateral air combat training exercise of Australia.
- Red Flag: Multilateral air exercise of USA.

8 Global Bio-India 2021

The 2nd edition of Global Bio-India will be organised on a digital platform.

- It aims to showcase the strength and opportunities of the India's biotechnology sector at national level and to the global community.
- It is organised by Department of Biotechnology along with its Public Sector Undertaking, Biotechnology Industry Research Assistance Council (BIRAC) in partnership with Invest India.
- Theme is 'Transforming Lives' along with the tagline 'Biosciences to Bio-economy'.

Significance of the biotechnology sector

- The Biotechnology sector has become a significant part of the Indian economy.
- The Indian government is also playing a major role in building the bio-economy worth USD 150 billion by 2025.
- This sector is considered as a major driver for India to achieve the target of USD 5 trillion targets.
- Policy initiatives of the Government of India (GoI) such as the Make in India program are aimed to develop India as a world-class Biotechnology and Bio-manufacturing hub.

Draft National Biotech Development Strategy 2020-24

- It has called for more engagement with start-ups and to leverage the public-private partnership (PPP) model to take the industry to USD150 billion by 2025.
- It aims to build and nurture a vibrant start-up, entrepreneurial, and industrial base, connecting academia and industry.
- Focus is on Strengthening and nurturing of a strong basic research and innovation driven ecosystem across research institutes and laboratories, both public and private sector.

Biotechnology Parks

- The Department of Biotechnology has established Biotechnology Parks/Incubators across the country to translate research into products and services by providing necessary infrastructure support.
- These Biotechnology Parks offer facilities to Scientists, and Small and Medium sized Enterprises (SMEs) for technology incubation, technology demonstration and pilot plant studies for accelerated commercial development of Biotechnology.

9

Red rice**First export consignments of 'red rice' from Assam to the USA flagged off.**

- The red rice is rich in Iron and is grown in the Brahmaputra valley of Assam.
- It is grown without using any chemical fertilisers.
- This variety of rice is called as the 'Bao-dhaan', which is an integral part of foods in Assam.
- Much like brown rice and white rice, red rice also comes with many incredible health benefits.
- Due to the presence of a component called anthocyanin, this rice is usually consumed either partially hulled or unhulled.

Agricultural and Processed Food Products Export Development Authority (APEDA)

- APEDA is the Apex-Export Trade Promotion Active government body.
- The body was set up by the "Ministry of Commerce and Industry".
- It was set up under the APEDA Act.
- The Act was passed in December 1985.
- Following that, the apex body was established and came into effect from February 1986.

10

QS World University Rankings

The Quacquarelli Symonds (QS) World University Rankings 2021 were released recently.

Key-highlights of the Ranking

- The top 10 universities of the world comprised mainly the top-notch Ivy League colleges from the US, the UK and even one from Switzerland.
- Massachusetts Institute of Technology (MIT) of the United States secured Rank 1.
- No Indian institute secured a position among the top 100 universities of the world.
- Like last year's QS rankings, IIT Bombay, IISc Bengaluru, and IIT Delhi featured in the top 200 list.
- IIT Bombay dropped 20 spots — from 152 to 172, IISc Bengaluru dropped one spot from 184 to 185, and IIT Delhi dropped 11 spots from 182 to 193.

QS World University Rankings

- It is published annually by Quacquarelli Symonds (QS), a British company specialising in the analysis of higher education institutions around the world.
- It measures the world's top 1,000 universities on 6 factors:
 - Academic reputation
 - Employer reputation
 - Faculty/Student Ratio
 - Citations per faculty
 - International Faculty Ratio
 - International student ratio

- In total, 21 Indian higher education institutions have found their place among the world's top 1,000 (It was 24 last year). Of these 21, 14 have fallen in rank over the past 12 months, while four have improved their position.
- Indian institutions got zero score on ratio of international faculty and students. India also scored poorly on faculty- student ratio.
- This is because India counts only full-time faculty, whereas American universities include even PhD students who are teaching or research assistants.

National Institutional Ranking Framework

- ▶ The Ministry of Human Resource Development (now Ministry of Education) established the National Institutional Ranking Framework (NIRF) in September 2015.
- ▶ This framework outlines a methodology to rank institutions across the country according to parameters covering: Teaching, Learning and Resources; Research and Professional Practice; Graduation Outcomes; Outreach and Inclusivity; and Perception.

11 Solid Fuel Ducted Ramjet (SFDR) technology

DRDO conducts successful flight test of Solid Fuel Ducted Ramjet.

What is SFDR?

- It is a missile propulsion technology jointly developed by India and Russia.
- Ramjet is a form of air-breathing jet engine that uses the vehicle's forward motion to compress incoming air for combustion without a rotating compressor.
- Fuel is injected in the combustion chamber where it mixes with the hot compressed air and ignites.
- A ramjet-powered vehicle requires an assisted take-off like a rocket assist to accelerate it to a speed where it begins to produce thrust.

Scramjet

- ▶ The scramjet engine is an improvement over the ramjet engine. It efficiently operates at hypersonic speeds and allows supersonic combustion. Thus, it is known as Supersonic Combustion Ramjet or Scramjet.

Significance

- Successful demonstration of SFDR technology will enable DRDO to develop indigenous long range air-to-air missiles.
- At present, such technology is available only with a handful of countries in the world.
- Air-to-air missiles which use SFDR technology can achieve longer ranges as they do not require oxidisers (take oxygen from the atmosphere).

Dual Mode Ramjet

- ▶ A dual-mode ramjet (DMRJ) is a type of jet engine where a ramjet transforms into a scramjet over Mach 4-8 range. It means it can efficiently operate both in subsonic and supersonic combustor modes.

- The missile based on SFDR fly at supersonic speeds and high manoeuvrability ensures the target aircraft cannot get away.

12 Amazonia-1 Satellite

The ISRO recently launched Amazonia-1 satellite of Brazil and 18 Co-passenger satellites through PSLV-C51 rocket.

About the mission

- It is the 53rd mission of PSLV.
- Amazonia-1 is the primary satellite of the launch.
- It is the first dedicated commercial mission of New Space India Limited (NSIL).
- NSIL is a Government of India company under Department of Space.
- Amazonia-1 is the optical earth observation satellite.
- This satellite would provide remote sensing data to users for monitoring deforestation in the Amazon region and analysis of diversified agriculture across the Brazilian territory.

Polar Satellite Launch Vehicle

- ▶ Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India.
- ▶ It is a four-staged launch vehicle with first and third stages using solid rocket motors and second and fourth stages using liquid rocket engines.
- ▶ It is the first Indian launch vehicle to be equipped with liquid stages.

Other Satellites

- ▶ **UNITYsat (three satellites):** They have been deployed to provide Radio relay services.
- ▶ **Satish Dhawan Satellite (SDSAT):** is a nano satellite intended to study the radiation levels/ space weather and demonstrate long range communication technologies.
- ▶ **SindhuNetra:** It was developed by students of Bengaluru-based PES University, This project will help in identifying suspicious ships through satellite imaging.
- ▶ **USA Satellites:** 13 satellites were from the USA, one was a technology demonstration satellite (SAI-1 Nano Connect 2) and the remaining for 2-way communications and data relay (SpaceBEEs).

13 National Science Day

It is celebrated to commemorate discovery of the 'Raman Effect', which led to Sir C.V. Raman winning the Noble Prize.

- Aim is to propagate the message of the importance of science and its application among the people.
- 2021 Theme: 'Future of STI (Science, Technology and Innovations): Impacts on Education, Skills, and Work'.

- National Council for Science & Technology Communication (NCSTC) of Ministry of Science and Technology is the nodal agency.

Raman Effect

- Raman is the inelastic scattering of a photon by molecules which are excited to higher vibrational or rotational energy levels. It is also called Raman scattering.
- It is a change in the wavelength of light that occurs when a light beam is deflected by molecules.
- Most of this scattered light is of unchanged wavelength. A small part, however, has wavelengths different from that of the incident light and its presence is a result of the Raman Effect.
- The Raman Effect forms the basis for Raman spectroscopy which is used by chemists and physicists to gain information about materials.

14 Maritime India Summit 2021

PM inaugurates Maritime India Summit 2021.

Key-highlights of the Summit

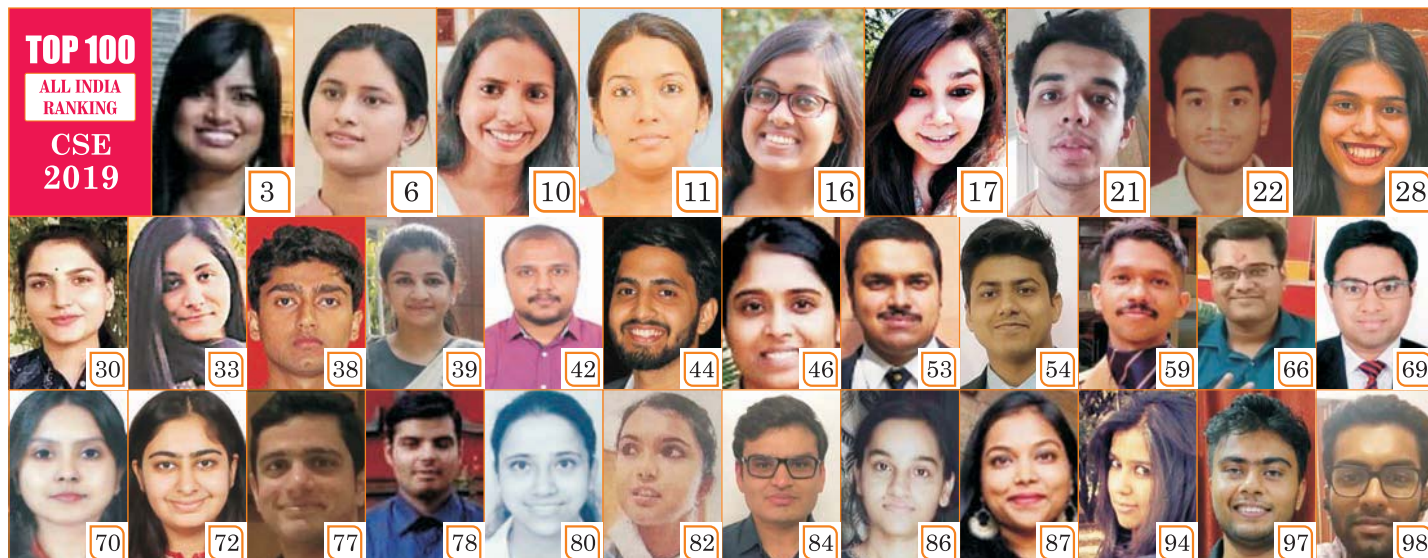
- It is Organized by Ministry of Ports, Shipping and Waterways
- Denmark is the partner country for the three-day summit.
- The Summit will visualize a roadmap for India's Maritime sector for next decade.
- It will work to propel India to the forefront of the Global Maritime Sector.
- Eminent speakers from several countries shall attend the Summit.
- India has 12 major ports and several minor ports along its West and East coast.
- India has enacted Recycling of Ships Act, 2019 and agreed to the Hong Kong International Convention.

Significance

- It will help in growth of the maritime sector and promote India as a leading Blue Economy of the world.
- Further the Maritime India Vision 2030.

Sagarmala Programme

- The Sagarmala Programme is the flagship programme of the Ministry of Shipping to promote port-led development in the country by exploiting India's 7,517 km long coastline.
- The Sagarmala Programme is an initiative by the government of India to enhance the performance of the country's logistics sector.
- The programme envisages unlocking the potential of waterways and the coastline to minimize infrastructural investments required to meet these targets.



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